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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 08/932,427 | 09/17/1997 | YOSHIO KITAMURA | 1081.1055/JD | 5306 |

7590 01/04/2005
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| EXAMINER |
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PORTKA, GARY J

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| ART UNIT | PAPER NUMBER |
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2188

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/932,427

Applicant(s)

KITAMURA, YOSHIO

Examiner

Gary J Portka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,7,13-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,7,13-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on September 30, 2004 has been entered.

2. Claims 1, 7, 13-15, 19 and 20 have been amended by Applicant. Claims 1, 3, 7, 13-15, and 17-20 are pending.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on May 11, 2004 was considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 7, 13-15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-205641, in view of JP 3-253933 (pages and lines numbers hereinbelow reference the supplied English translations).

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6. As to claims 1, 7, 13-15, and 19-20, JP 60-205641 discloses a RAID apparatus (since any multiple disk system with multiple volumes holding identical data may be considered RAID) and control method comprising:

- a. plurality of disk units storing a plurality of copies of each of data of logical volumes (see page 2 lines 19-22 and page 3 lines 6-11 and 24-27), and disk controller for accessing the disk units at the logical volumes (required to control disks, and including main memory, CPU, and dual volume control program, see page 3 line 27 to page 4 line 2, and page 4 lines 20-22);
- b. the disk controller including a memory storing number of request operations for each disk, and control means comparing these and selecting the single disk having the least, and thus outputting a request to the single minimum waiting disk unit based upon the comparison, where the number is incremented/decremented for each new request/completion (see page 3 line 27 to page 4 line 13, and page 5 line 5 to page 6 line 8);
- c. wherein the disk units perform operations in a queued order (see queues of Figs. 2 and 3);
- d. wherein the memory stores the recited status table indicating correspondence between disks and logical volumes and selection of the disk on which a logical volume is allocated by comparison of operation numbers (the page 4-6 sections cited above disclose the correspondence of disks via the physical volumes of the multiple volume). The table stores structure definition information to the extent recited since for each multiple

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volume a table identifies the physical volumes used and last access cylinder number. This table also identifies where the copies for the logical volume reside, and therefore holds mirroring information for each logical volume as recited, which may be seen as pair information.

JP 60-205641 does not disclose that the normal/abnormal status of each disk is stored in a table, to avoid selecting an abnormal disk as recited.

However, JP 3-253933 discloses a table storing various states of disks, including if a write is in progress, and if in normal working order (see page 8 lines 24-27, page 10 lines 21-27, and page 11 line 25 to page 12 line 6). Thus it teaches an easy method for accounting for and avoiding the attempted use of a disk that is in an abnormal status, and this advantage would have motivated an artisan to implement it is a system such as in JP 60-205641. Since the status of each disk would be known, and as described above the location of each copy for a logical volume is known, the table implicitly indicates the status of all logical volumes. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to store status of each disk in a table, because this was a known means of preventing the using of a disk in an abnormal status.

7. As to claim 3, JP 60-205641 discloses channel adapter, device adapter, and resource manager to the extent that these elements are recited, as described within the sections cited above.

8. As to claims 17 and 18, the status of disks disclosed in JP 3-253933 as described above may be considered part of either of both of the recited tables to

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the extent recited, all further limitations being disclosed in the implementation of the abnormal status of a disk as described above.

Response to Arguments

9. Applicant's arguments filed September 30, 2004 have been fully considered but they are not persuasive. Applicants have argued that the prior art of record does not teach a RAID, nor a status table stores structure information and mirroring information including pair information for each logical volume. Examiner disagrees to the extent that these limitations are claimed; the multiple volume management tables described above indicate on which physical devices and to what cylinder a volume is stored, therefore incorporating structure definition information since they indicate where in the structure of the device the volume resides, and also incorporating mirroring information since they indicate where copies (mirrors) of a volume reside. Since any copies of a mirror are indicated, this is seen as pair information. Since the combination of prior art includes status information for each device, and the locations of all copies are indicated, the status of each copy is implicitly indicated.

Conclusion

10. This is a continuation examination of Application No. 08/932,427. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See

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MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gary J Portka
Primary Examiner
Art Unit 2188

December 21, 2004